

OBSTETRIC TABLES,

BY

G. SPRATT,

Surgeon-Accoucheur.

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OBSTETRIC TABLES:

COMPRISING

COLOURED DELINEATIONS ON A PECULIAR PLAN,

INTENDED TO

ILLUSTRATE ELEMENTARY AND OTHER WORKS

ON

THE PRACTICE OF MIDWIFERY,

ELUCIDATING PARTICULARLY

THE APPLICATION OF THE FORCEPS,

AND OTHER IMPORTANT PRACTICAL POINTS IN OBSTETRIC SCIENCE.

By G. SPRATT, SURGEON-ACCOUCHEUR,

EDITOR OF THE FLORA MEDICA, AND OF THE THIRD EDITION OF WOODVILLE'S MEDICAL BOTANY, &c.

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DEDICATION.

TO

SIR CHARLES MANSFIELD CLARKE, BART.

PHYSICIAN TO THE QUEEN.

SIR,

THE high professional pre-eminence which your great talents as an Obstetrician, and your unwearied zeal in the alleviation of disease incidental to the female sex, have obtained for you, induced me to solicit the honour of placing this volume under your auspices. Encouraged by the flattering kindness which you have shown me, in condescending to examine and suggest many improvements in these Tables, and honoured by your permission to dedicate them to you, I respectfully do so, feeling assured that a work (especially intended to promote the relief of female suffering) could not be so well placed as under your protection. That you may long continue to enjoy the exalted station in your profession which you now hold, is the sincere wish of,

SIR CHARLES,


Your very much obliged

and very obedient

Humble Servant,

THE AUTHOR.

Brompton.



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P R E F A C E.

AMONGST the numerous embellished works which have issued from the press of late years, illustrating in a varied and beautiful manner different branches of the sister sciences of Anatomy and Surgery, it does not appear that art has done as much towards the illustration of Obstetric Surgery as its great importance to all classes of the profession would appear to demand. It is a well established fact, that in most branches of science delineations faithfully executed, convey more impressively to the mind the objects to be attained than mere descriptions possibly can. The student in obstetric science, and the more inexperienced accoucheur, have indeed ample choice of elementary and scientific works on the practice of Midwifery; but in graphic illustrations to demonstrate the theories and practice detailed in those treatises, his choice is very limited, the works of Hunter and Smellie being almost the only plates of any value on the subject, and these are deficient in many practical points of peculiar interest and importance to the uninitiated, independently of their incommodious size and great expense.

The object of the present work (which the author hopes will not be found wanting in practical utility and interest) is to supply the deficiency in this department of medical science, to present the student with a series of accurate and perspicuous delineations, which will at once convey to his mind a clear and comprehensive view of those important objects in obstetric

practice so necessary to be impressed upon his memory. To the finished student who is about to enter on the practical part of his profession, this work will recall to his recollection many points of great interest; and to the experienced practitioner, it will form a supplementary volume to his obstetric library, which (it is hoped) will not unworthily fill a vacuum on his shelves. It must be acknowledged that many gentlemen, immediately after having completed their medical course of studies, enter into general practice, and although well grounded in the theoretical points of Midwifery, (one of the most important branches of the profession to a country practitioner,) yet after the lapse of some years, on the more rare points of practice, the memory needs some little refreshing. We will take, for example, the use of the forceps: from the commencement of practice many years may elapse before it is necessary even to look at them; is it not then probable that some points, of much importance in their application, &c. &c. may have escaped the memory? If so, the present work will, we presume, remind the practitioner, at a glance, of these particulars. In addition to the descriptions of the several delineations, the author has added a few practical remarks, founded on the first authorities, whose writings he has consulted; and in the execution and arrangement of the drawings, (which are from the author's own hand,) accuracy and perspicuity have been preferred to elegance, although in the latter point, he trusts the work will not be found deficient.

The author cannot omit the present opportunity of returning thanks to several eminent lecturers on Midwifery and Anatomy, who did him the honour to inspect the work and suggest some improvements, previously to its going to press.

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TABLE I.

Fig 1.

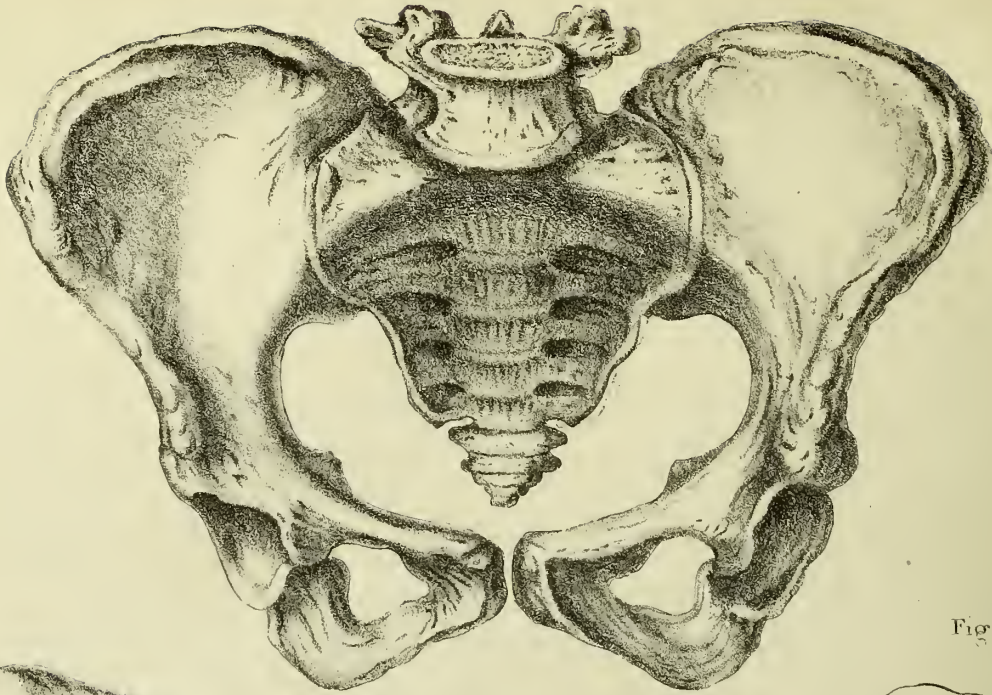


Fig 2

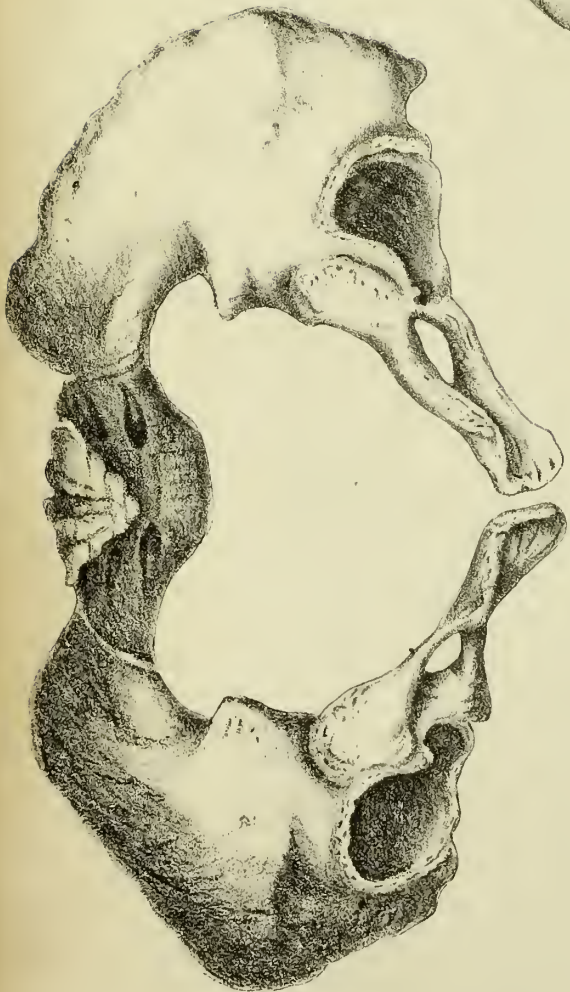


Fig 3.



Fig 4.



TABLE I.

Fig. 1.—Front view of a perfect and well-formed female pelvis, the ligaments being removed.

Fig. 2.—View of the same pelvis resting on the left ilium. (This view is intended to give a correct idea of the position of the pelvis, when a woman is lying in a recumbent posture on her left side.)

Fig. 3.—Represents a section of the bones of the pelvis, (the left side.) The dotted line from *a* to *a* shows the axis of the brim of the pelvis, the centre of which is where the dotted line crosses the line marked *i*. The curved dotted line marked *b b*, denotes at the point where it crosses the dotted line *a k*, the centre of the lower aperture. The dotted circle round the letter *c*, shows the situation of the acetabulum; *d*, the foramen magnum; *e*, the bones of the sacrum and coccyx; *f*, the pubis; *g*, the ilium; *h*, the ischium.

Fig. 4.—Horizontal view of the same pelvis. (This is intended to represent the position of the pelvis, when the female, in the act of parturition, is about to be delivered, when lying on her back.)

The above figures are about half the size of the natural pelvis, the drawings being made on the scale of four-eighths of an inch.

The bones of the pelvis claim the particular attention of the accoucheur, as, without a proper knowledge of them, no one can be a competent judge how to act in difficult cases, or under particular circumstances. The perfect pelvis varies in size in different women: from the rim the depth varies in some of its parts. It is from four and a half

to five or six inches behind, from the top of the sacrum down to the coccyx; from two and a half to three inches at the sides to the lower edge of the ischium; and one and a half to two inches deep at the symphysis pubis.

Each aperture of the pelvis has two diameters, a long and a short one: in the upper aperture, the long diameter is from side to side, (about five inches and a half;) the short diameter is from sacrum to pubis, (about four and a quarter, or four and a half,) but occasionally much wider. The lower aperture differs from the upper, in having the long diameter from sacrum to pubis; the short diameter is from ischium to ischium.

The pelvis may be properly divided into two cavities or chambers, the upper and the lower. The axis of the upper chamber differs from the lower: the dotted line *a a* Fig. 4, from the coccyx to the scrobiculus cordis, (the part between the navel and pit of the stomach,) represents the axis of the upper chamber, and shows the direction the forceps ought to take, when it becomes necessary to apply them, when only half the head of the child has entered the brim, and to draw downward and *backward*. But when the head gets lower down, so as to be chiefly in the lower chamber, the axis varies; the forceps will then take a different direction, and continue changing as the head of the child advances in the direction of the central curved dotted line *b b* Fig. 4, when the action with the forceps will be downward and *forward*. "Even in bringing the fœtal body through the pelvis, the course of the axis must not be forgotten, more especially if the pelvis be contracted."*

It must be remembered, however, that the cavity of the pelvis is considerably diminished by its teguments and contents. Correspondent, however, to this diminution of the cavity of the pelvis, the head of the full-grown fœtus measures but three inches and a half from ear to ear, (the short diameter of the fœtal head,) and four and a quarter from the fore to the hind head, (the long diameter.) These dimensions, however, it must be recollected, differ both with regard to the pelvis and the fœtal head, and are frequently the cause of lingering labours.

* Dr. Blundell's Lectures.



TABLE 2.

Fig 1 & 2.

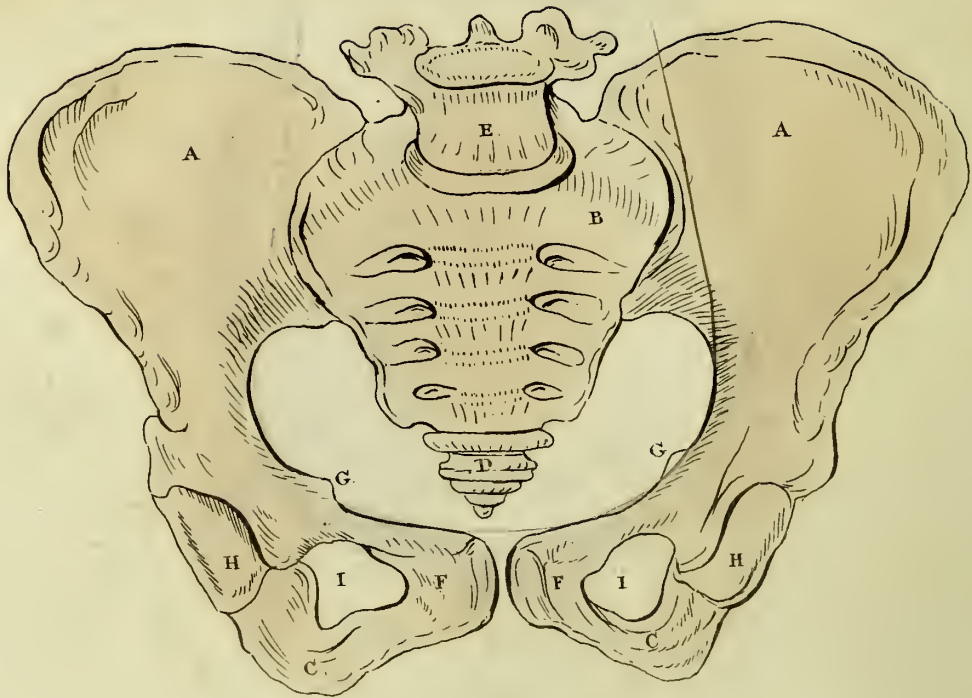


Fig 3 & 4.

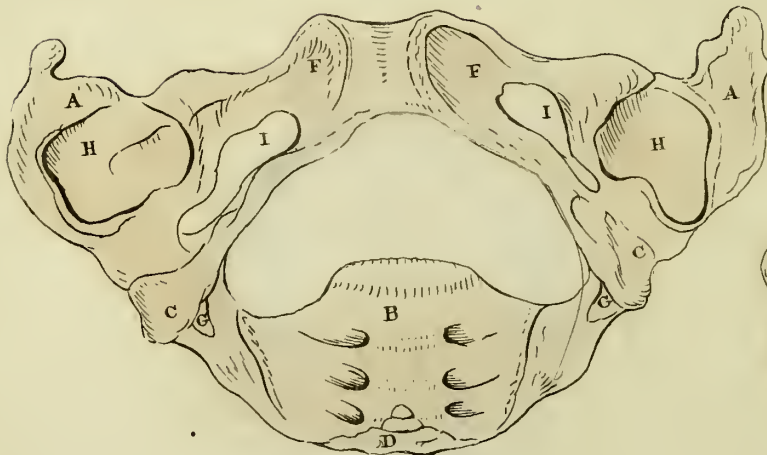


Fig 5



TABLE II.

Fig. 1.—Represents lines of *Fig. 1* in the preceding Table; *a a*, ossa ilii; *b*, os sacrum; *c c*, ossa ischii; *d*, os coccygis; *e*, the lowermost vertebræ lumborum; *f f*, ossa pubes; *g g*, spinous processes of the ossa ischii; *h h*, acetabula; *i i*, foramen magnum.

Fig. 2.—Represents the head of the fœtus passing diagonally through the brim of the pelvis.

Fig. 3.—Outline of *Fig. 4* in Table I. The letters refer to the bones as described in *Fig. 1* of this Table.

Fig. 4.—Represents the head of the fœtus passing through the lower aperture or outlet of the pelvis.

Fig. 5.—Outlines of *Fig. 2*, Table I. The letters refer to the bones as described above.

TABLE III.

Fig. 1.—Front view of a pelvis somewhat distorted. When the distortion of the bones is not more than in the pelvis here represented, and the head of the child of a moderate size, it may pass by the natural efforts; but if not, the forceps or vectis (if judiciously applied) may succeed.

Fig. 2.—Outlines of the same pelvis. *a a a a*, the lowermost vertebra; *b*, the sacrum; *c*, coccygis; *d d*, ilium; *e e*, ischium; *f f*, tuberosity of ischium; *g*, pubis; *h h*, acetabulum; *i i*, spinous process of ischium.

Fig. 3.—A very remarkable distorted pelvis, occasioned by the disease termed *mollities ossium*. The distance from the most projecting part of the spine to the part where the pubes and ilium unite, measured on the left side only one inch and three-eighths, on the right side one inch. From the internal point of the os pubis on the right side to the centre of the vertebræ one inch and three-eighths, on the left side one inch and a half.

Fig. 4.—Outlines of the same pelvis.

Fig. 5.—View of another greatly distorted pelvis. The distance between the symphysis pubis and the projection of the sacrum measured only seven-eighths of an inch. From the termination of the coccyx to the lower part of the symphysis pubis one inch and seven-eighths.

Fig. 6.—Outlines of the same pelvis.

These drawings of distorted pelvises were made from casts, (from the original skeletons,) on the scale of one-third. By comparing these with the perfect pelvis, Table I, (which

TABLE III.

Fig 1.

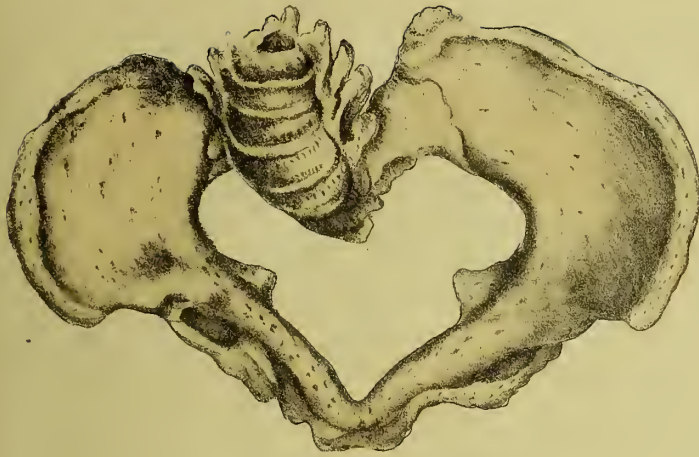


Fig 2.

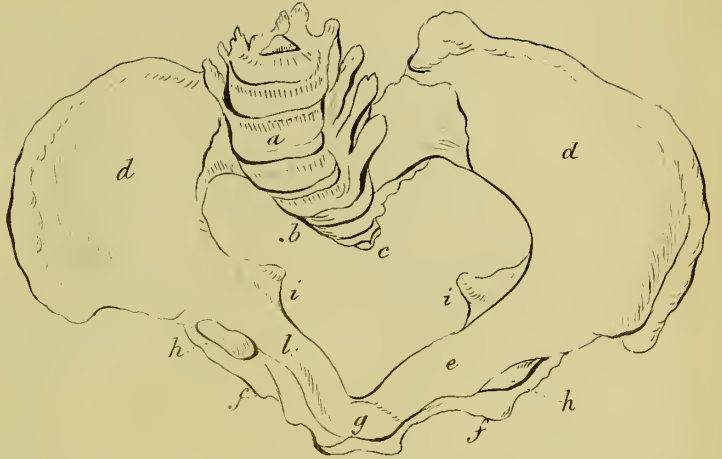


Fig. 3.

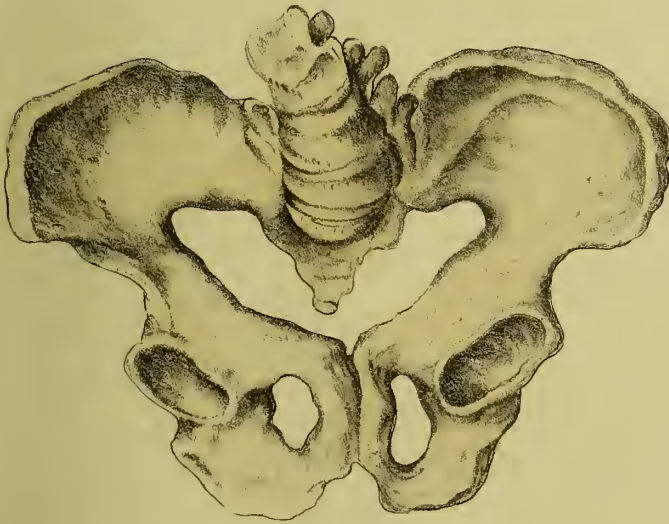


Fig 4.

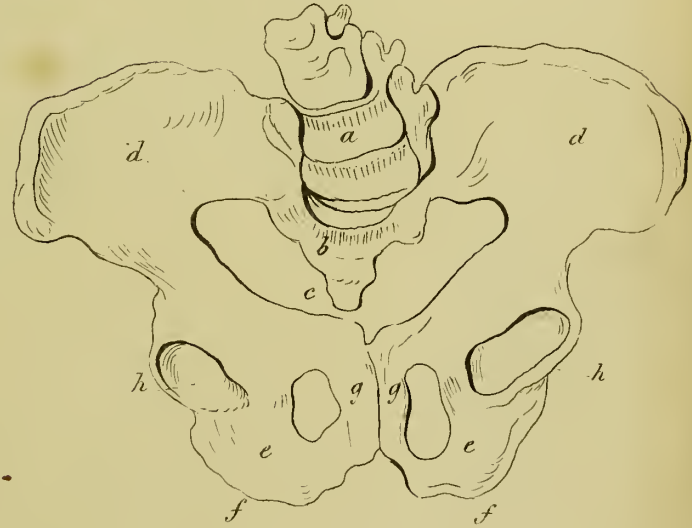


Fig. 5.

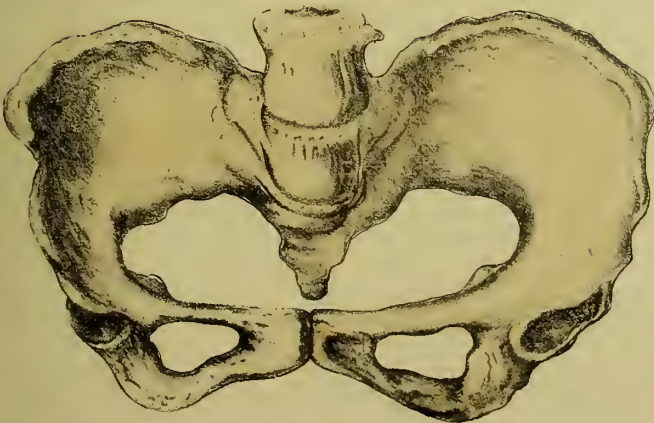
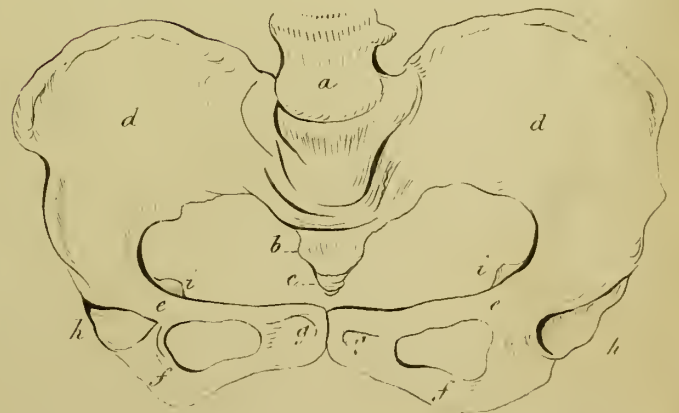


Fig. 6.



is made on the scale of four-eighths to the inch,) the degree and peculiarity of the distortion will be readily discerned.

To ascertain the distortion between the front and the back of the pelvis, let the forefinger be placed on the promontory of the sacrum, and the rest of the fingers at the arch of the pubes, which will give the distance. To measure the brim from side to side, introduce all the fingers close together, and then spreading them from one side to the other, the degree of distortion may be ascertained; or all the fingers may be applied to the back of the symphysis pubis. If there be want of room behind the pubis, you will then feel something of an angle there. If the brim be of full measure from side to side, when all the fingers are introduced and placed behind the symphysis, they will all of them lie in the same place.

To measure the outlet of the pelvis from before backwards, place the fingers so that the root of the index one lies against the arch of the pubes, and the tip of it upon the coccyx. Thus ascertaining the measure between the front and back, and by laying all the four fingers into the arch of the pubes, the distance from side to side may be known.*

Those contractions which create the most frequent difficulties, and which, at the bedside, are found the most frequently to require the use of instruments, are almost invariably found at the brim of the pelvis; therefore whenever it is suspected that there is such a degree of distortion as may require the use of the forceps, lever, or perforator, the brim is the part of that pelvis which should be first and most carefully examined. When contractions occur at the brim, they are found almost *invariably between* the pubis and sacrum. The contractions lying at the brim are sometimes placed between one and the other side, where they rarely require the use of instruments.

* Blundell's Lectures.

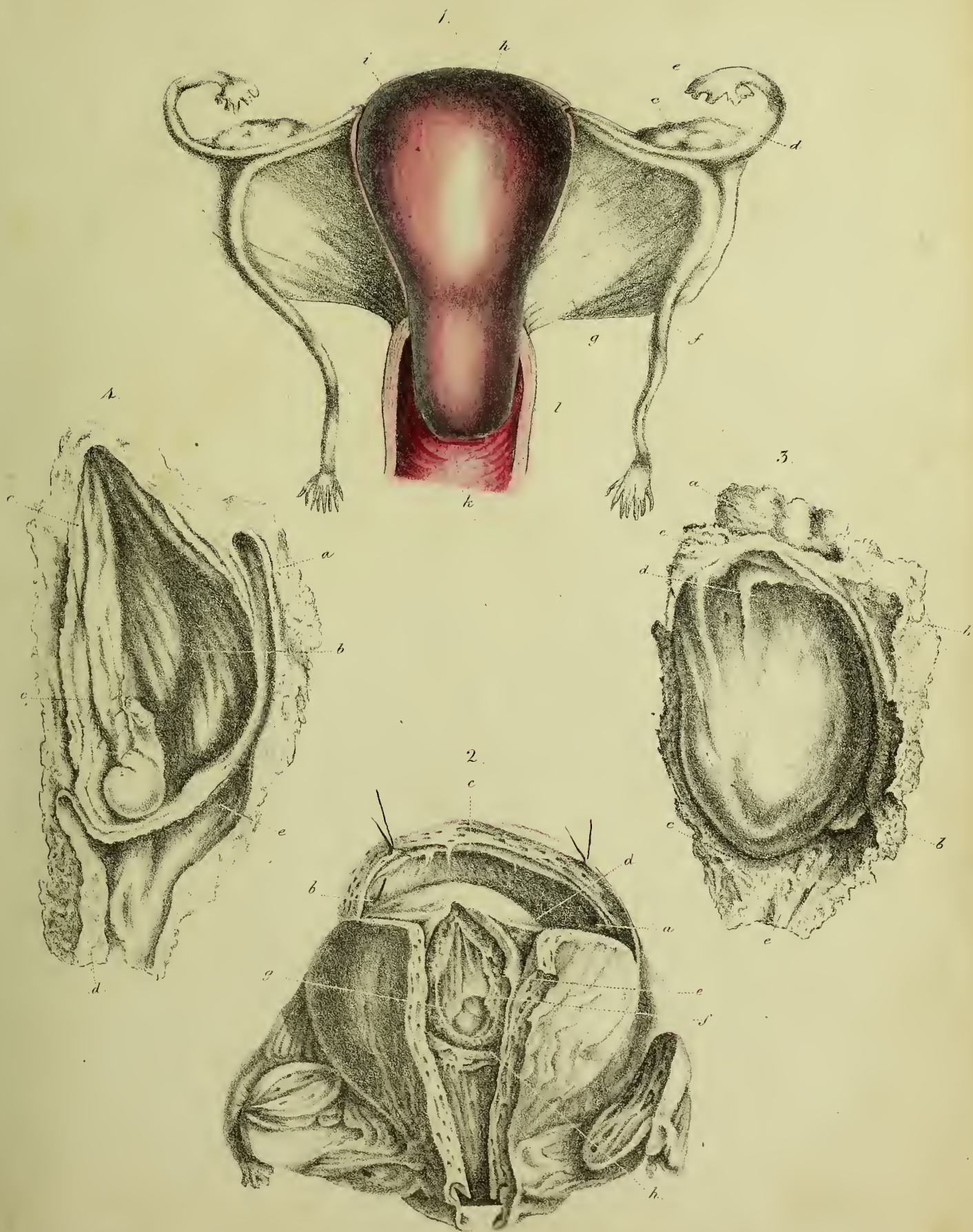
TABLE IV.

Fig. 1.—Represents (of the natural size) a front view of the unimpregnated uterus and its appendages; with a section of the upper part of the vagina, the anterior part of which is removed to show the collum uteri suspended in it. *a*, the corpus (or body); *b*, the cervix (or neck), these being raised, show the cavity of the uterus *i*; the dotted part *h* represents a section of the body, fundus, and neck of the uterus; *c*, the ovaries on each side; *d*, the fallopian tubes; *e*, the fimbriæ (raised a little out of their natural situation in order to display them the better); *f*, the round ligaments; *g*, the broad ligaments; *k*, the cavity of the vagina; *l*, the cut edge of the substance of the vagina.

Fig. 2.—Represents the back of the uterus and its appendages in the second month of uterogestation, with a longitudinal incision down the posterior surface, crossed by a transverse one parallel to the entry of the fallopian tubes, to show the ovum. *a*, the right fallopian tube; *b*, the left ditto; *c*, the decidua uteri or decidua vera; *d*, the decidua reflexa or ovuli covering the unattached part of the ovum; *e*, the decidua vera or uteri, passing down between the ovum and uterus; *f*, the chorion; *g*, the amnion; *h*, the decidua lying between chorion and decidua, which crossed the cervix uteri. This drawing is half the size of nature; for which and the following description, we are indebted to Dr. Robert Lee, who kindly permitted us to copy his drawing, illustrating his remarks on the structure and formation of the human ovum, published in the 17th vol. of the Medico-Chirurgical Transactions.

“The thickness of the parietes of the uterus, though greater than in the quiescent state, were not proportionate to the general increase in dimensions of the viscus—they were only four lines at the fundus, and six lines at the cervix, gradually increasing towards that part; the chief difference was observable in the already enlarged size of the uterine venous sinuses. The deciduous membrane, which closely adhered to the inner surface of the uterus, was then laid open by two incisions previously made in the parietes of the uterus. The cavity of the uterus being exposed, the ovum, about the size of a pullet’s egg, came into view, and was observed to be situated towards the lower part of the uterus. The part of the cavity to which it adhered was included between two parallel lines, drawn, the one transversely across the uterus at the distance of half an inch below the entry of the fallopian tubes, the other at two inches from the os tincæ. Consequently the ovum was situated altogether below the entry of the fallopian tubes, and was unattached both at its upper and lower part, leaving a free space or canal between it and the os tincæ corresponding to the shape of the elongated cervix, and a much larger cavity between the upper part of the ovum and the fundus uteri.

TABLE IV.



“Intervening between the superior and unattached surface of the ovum and fundus uteri was a broad but shallow cavity, measuring three inches in the lateral, and one inch and a half in the antero posterior diameter, and from one to two lines in depth. The upper concave surface of the cavity formed by the decidua lining the fundus uteri or decidua vera, was irregular and slightly reticulated. The inferior convex surface formed by the decidua covering the ovum, or decidua reflexa, was perfectly smooth, resembling the external serous surface of the uterus. Into this cavity the fallopian tubes freely opened by palpable orifices; that on the left side, by which the ovum had entered the uterus, being rather more than a line in diameter, that in the right rather less. The cavity thus formed between the decidua lining the fundus uteri and the decidua covering the upper and unattached portion of the ovum, was filled with a red-coloured serous fluid.

“The ovum was next laid open by an incision through the chorion, parallel with the longitudinal incision of the uterus, and the amnion enclosing the embryo was brought into view. The placenta was situated principally over the cervix and posterior part of the body of the uterus, and the decidua closely adhering to the placenta passed across the upper part of the cervix uteri in the form of a thick reticular membrane. The decidua was then observed to extend upwards between the uterus and chorion, every where firmly connecting these together as high as the entrance of the fallopian tubes. From this point the deciduous membrane was spread out in two different directions, viz. over the upper convex and unattached surface of the ovum, and over the whole concave surface of the fundus uteri, so as to form the cavity above described, into which the fallopian tubes freely opened. The deciduous membrane interposed between the ovum and uterus exhibited the usual degree of development and organization. Where it passed off from the uterus to cover the upper surface of the ovum, it was somewhat thicker than elsewhere, and was divided into two distinct layers. The tufts of vessels of which the placenta is constituted were more distinct from each other than they subsequently become, and they filled the entire space between the chorion and decidua. The appearance of a division of the placenta into foetal and maternal portion did not exist.”

Fig. 3.—An abortion of about nine weeks, seen on that side which is membranous. The decidua is torn and turned aside to show the smooth and opaque decidua reflexa. *a a*, portion of the placenta; *b b*, lacerated edge of the decidua; *c c*, the internal cribiform surface of the decidua, which in the first month does not adhere to the membranes which it encloses; *d*, decidua reflexa spread over the outside of the chorion; *e*, termination of the decidua reflexa at the cervix uteri.

Fig. 4.—Vertical section of the same abortion as *Fig. 3*. *a*, section of the anterior part of the decidua; *b*, cavity of the amnion in which the embryo hangs by a slender navel string, from the inside of the placenta; *c c*, section of the placenta which adhered to the upper and back part of the womb; *d*, termination of the decidua at the cervix uteri.

TABLE V.

Fig. 1.—This figure is half the size of nature, and represents the back of the impregnated uterus, with a section of its body, to show the foetus between the third and fourth month of gestation. The child is seen through the transparent membranes, the decidua reflexa covering the transparent membrane is represented by the opaque and white striæ. The blue vessels represent a convoluted vein, and the red convoluted arteries. *a*, the body of the uterus; *b*, the neck; *c*, the ovaries; *d*, the tubes; *e*, part of the broad ligaments; *f*, part of the round ligament. The vagina is represented cut open, to show the neck of the womb, &c. *g*, the upper part of the vagina, which is smooth, and less rugous than the fore part; *h*, the orifice of the urethra; *i i*, the nymphæ; *k*, the clitoris.

Fig. 2.—This figure represents the upper portion of the vagina, and the lower part of the body of the uterus and cervix uteri, the anterior part of the vagina being removed to show the cervix uteri, as shortened by pregnancy, about the length it commonly appears at the third or fourth month of gestation. *a a*, shows the lower part of the body of the uterus as it is stretched at the same period. By comparing this figure with the unimpregnated uterus, Plate I, *Fig. 1*, the alteration in the form of the parts will be readily perceived. *Fig. b* shows the cervix uteri at about the sixth month of pregnancy; and the dotted lines *c c*, the body of the uterus at the same period; *Fig. d*, the cervix uteri at the full term of gestation; and the dotted lines *e e*, the womb, stretched at the same period, which shows that the cervix uteri becomes nearly obliterated at the end of pregnancy.

Considerable allowance, however, must be made in our calculations for the difference in the length of the cervix uteri in different women. In general, if the neck of the uterus be only half its usual length, (the cervix uteri in the unimpregnated uterus being some-

TABLE V.

Fig. 3. & 4



Fig 2.

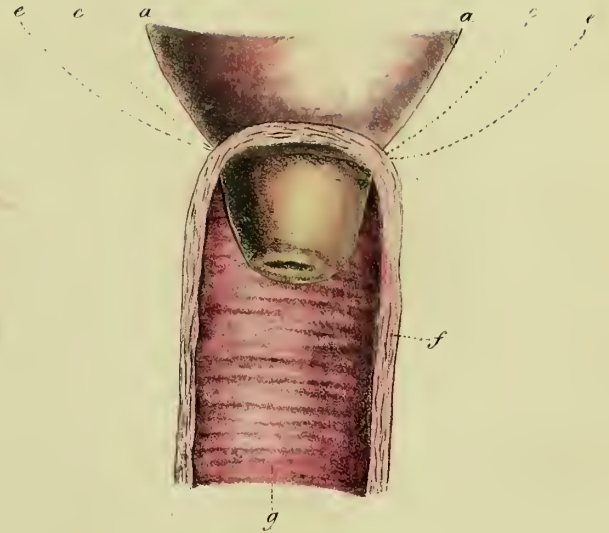


Fig 1.





what more than an inch in length,) we may judge the woman to be between five and six months advanced in her pregnancy; if three-quarters gone, between seven and eight months. At this period, the uterus leaning forward over the pubes, the neck is thrown back towards the sacrum, and renders it difficult to reach the os tincæ with the finger.

The mode of ascertaining pregnancy, by examination per vaginam by those who have habituated themselves, may sometimes be pretty correct; but the prudent accoucheur will be cautious in giving his opinion until about the fourth or fifth month.*

It may happen that the uterus may become enlarged by disease, in which case, unless particular symptoms are attended to and minutely investigated, the accoucheur will be mistaken in his prognostic.

The os tincæ in the virgin state appears like a crevice or cleft going from side to side, and closed; but in those who have had children it is circular, somewhat like a funnel with the large end downwards, into which the point of the finger may be introduced a little way. When the uterus is unimpregnated, the division between the neck and fundus cannot be distinguished, because it forms so very obtuse an angle; but if the womb be impregnated, the fundus will be enlarged to the size of an orange at the end of three months. (See *Fig. 1, a a.*) The best way of examining will therefore be, before you carry the finger to the os uteri, to pass it up the side of the vagina, (to the upper part,) and feel for the fundus.

Fig. 3.—Represents a section of the pelvis, uterus, &c. to show a morbid enlargement of one of the ovaries, occupying nearly the whole cavity of the pelvis, and preventing the descent of the child's head. *a*, the bones of the lower part of the spine, sacrum, and coccyx; *b*, section of the ossa pubes; *c*, the bladder; *d*, the rectum; *e*, the vagina; *f*, medulla spinalis; *g*, muscles and integuments of the abdomen; *i*, cut edge of the uterus; *k*, the enlarged ovary.

The most frequent cause of enlargement of the ovaries is the disease called encysted dropsy. References to eighteen cases may be found in the tenth volume of the "Medico-Chirurgical Transactions." These tumors have been found of various sizes and degrees of firmness; hence it is obvious that tumors so situated must prove an obstacle to parturition in proportion to their bulk and compressibleness. In cases of very moderate or partial confinement of the pelvis from this cause, it will be prudent to trust to the efforts of nature† to expel the child; and we are told by Dr. Merriman, that "where the tumor was not very large nor very firm, this method has been successful. In the more formidable cases of obstruction from this cause, various methods have been recommended to pre-

* Vide Denman's Introduction, &c. p. 202.

† See Davis's Operative Midwifery.

serve one or both lives. With a view of preserving the child, some have recommended the operation of turning, but this does not appear to have been successful. Others have taught that in such cases the perforator should be employed without delay. Sometimes the tumors have been opened, but in several instances it has been necessary subsequently to have recourse to embryotomy." In case of moderate obstruction from this cause, the occasional use of the forceps may be expedient to shorten the duration of labours, which might otherwise become dangerous to the mother or child.

Dr. Merriman, after enumerating the different methods adopted in eighteen cases, says, "Upon the whole, the evidence we at present possess is more in favour of opening the tumors, when they contain a fluid, than of any other mode of procedure."

Fig. 4.—This figure represents a displacement or protrusion of the urinary bladder, occasionally met with during labour, and which proves an impediment to the birth of the child.

This protrusion consists in a descent into the cavity of the pelvis, of a portion (more or less) of the parietes of the distended bladder, which form an elastic tumor, (as represented at *h*,) situated either under the arch of the pubes, occupying the anterior part of the vagina, or on one side.* The anterior protrusion is probably more frequently an obstacle to parturition than the lateral. We have met with one case of the former, and Dr. D. Davis says he has met with several, but not with one of the latter. We are told by Mr. Christian, "As the tumor is covered by the vagina, and its base diffused, there can be no danger of its being mistaken for the membranes enclosing the liquor amnii, nor does it, indeed, prevent the os uteri from being readily felt. If an error of this kind is at all to be apprehended, it is where the tumor is situated under the arch of the pubes." Dr. Merriman relates a case of the anterior protrusion, which was unfortunately mistaken for the head of a fœtus enlarged by hydrocephalus, and fatally punctured. Hence how much it behoves the inexperienced to pause and minutely examine every circumstance before they venture upon an operation. The remedial agent in these cases is the introduction of the catheter, (to draw off the water,) which will detect and cure this displacement.

* See Dr. James Hamilton's Cases in Midwifery, p. 9; and Mr. Christian's paper in the Edinburgh Medical and Surgical Journal, vol. ix. p. 281.



TABLE VI.

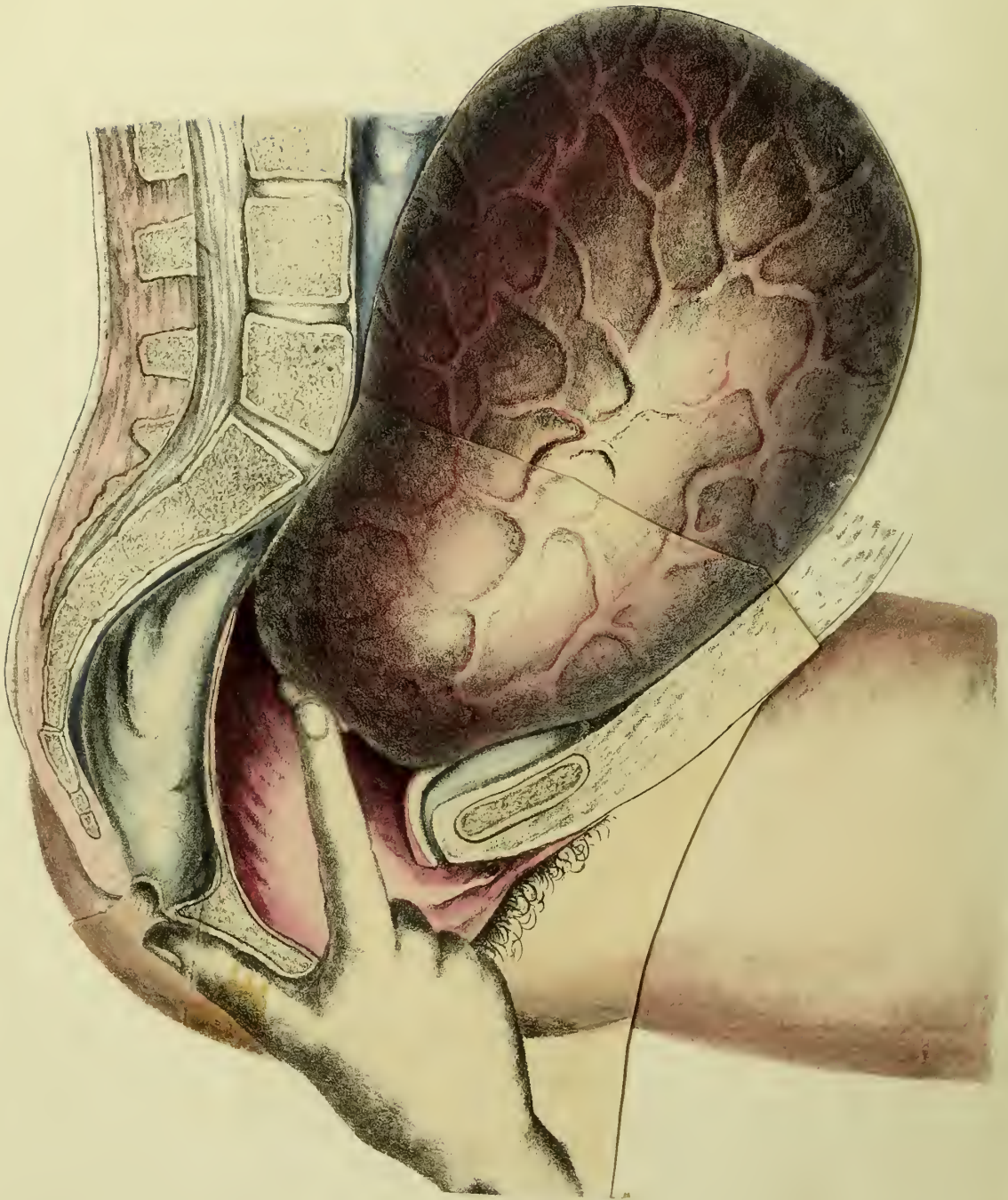


TABLE VI.

Fig. 1.—Represents a section of the left side of the female pelvis, with its contents, the upper portion of the left thigh, nates, &c. The uterus at the full period of gestation before labour has commenced, the os tincæ not dilated, the finger in the vagina in the act of an examination.

When the finger is introduced through the os externum into the vagina, it should be passed upward and backward to feel for the os uteri, which at the commencement of labour will usually be found high up, and pointing backward (towards the sacrum;) the touch of the finger will discover if the os tincæ be open, and how much, and if the membranes be pressing down and distending it. The os uteri will in some instances be somewhat relaxed and open for several days, or perhaps weeks, previous to the accession of labour; hence a slight dilatation of the os uteri is no proof that labour has commenced. If the os uteri be closed, (as here represented,) and some length of the cervix remain, labour cannot have commenced, although the woman may have pains periodical in their return. These are denominated false pains.* But if there should be *pressure* upon, or *dilatation* of the os uteri during the continuance of the pain, we may be persuaded labour has commenced. When the pain is off, carry the finger upwards and towards the symphysis pubis, when the head of the child, if presenting, may generally be perceived by the resistance made to the point of the fingers.

In some instances, the os uteri is displaced, and tilted backward towards the sacrum, so that it cannot be reached by the finger in the early part of labour. This situation of the os uteri occasions some embarrassment to young practitioners, who, upon a first examination, imagine the pelvis filled up by the head of the child, and hence anticipate a speedy delivery; but after the lapse of many hours, another and more accurate examination discovers the os uteri scarcely within reach, (projecting towards the sacrum,) and very little dilated. Labour, rendered tedious by this circumstance, requires only time and patience.

Fig. 2.—Represents the same parts, with the os uteri considerably dilated in the time of a pain, the membranes containing the waters protruding, with the index and middle finger of the left hand in the vagina.

* Denman's Introduction to Midwifery, sec. iv. p. 276.

When the os uteri lies very high up in the vagina, we have found it more readily reached by the middle finger of the left hand, than by the index of the right.

When the os uteri is dilated to about one inch in diameter, the head presenting, the parts well formed, and the woman having had children, the labour may be considered in some forwardness, provided the pains be considerable. But should the membranes be ruptured at this period, either accidentally or intentionally, the labour would be protracted, and probably rendered very tedious, particularly if the os uteri should be disposed to be rigid. Hence in making an examination, care should be taken not to press forcibly upon the membranes during the continuance of a pain.*

We are told by Dr. Merriman, "It may be safely laid down as a rule, (which will admit of very few exceptions,) that the membranes should *not* be artificially ruptured, 1. while the head of the *fœtus*, or a large portion of it, is above the brim of the pelvis; 2. while the *os uteri* is undilated, or in a state of rigidity; 3. while the *perinæum* is thick and firm, or rigid.†

Fig. 3.—Represents the same section of the parts, with a view of the os uteri fully dilated, the membranes (containing the waters) protruding.

When the os uteri is fully dilated, (as here represented,) the membranes usually break spontaneously. Should the presenting part of the child not have been previously ascertained, it is no proof against its being a natural labour; but should not the head or other part of the child be discovered by the finger after a pain or two, (the membranes being ruptured,) it will be justifiable to introduce the hand into the uterus to ascertain the presentation, and then to act according to the circumstances of the case.

Fig. 4.—Represents the same section of the parts, with the ^{right} ~~left~~ side of the uterus removed, to show the child in the act of parturition, at the termination of nine months' gestation. The head is represented here as advanced into the brim of the pelvis diagonally, with one ear inclined towards the ~~right~~ ^{left} groin, and the other towards the junction of the sacrum and ilium, the most favourable position for its passing through the upper chamber of the pelvis, the long axis of the head being in the direction of the long axis of the pelvis.

* Vide Denman's Introduction, &c. p. 282.

† Vide Synopsis of Difficult Parturition.

TABLE VII.

Fig. 1.



Fig. 2 & 3.



Fig. 4 & 5.

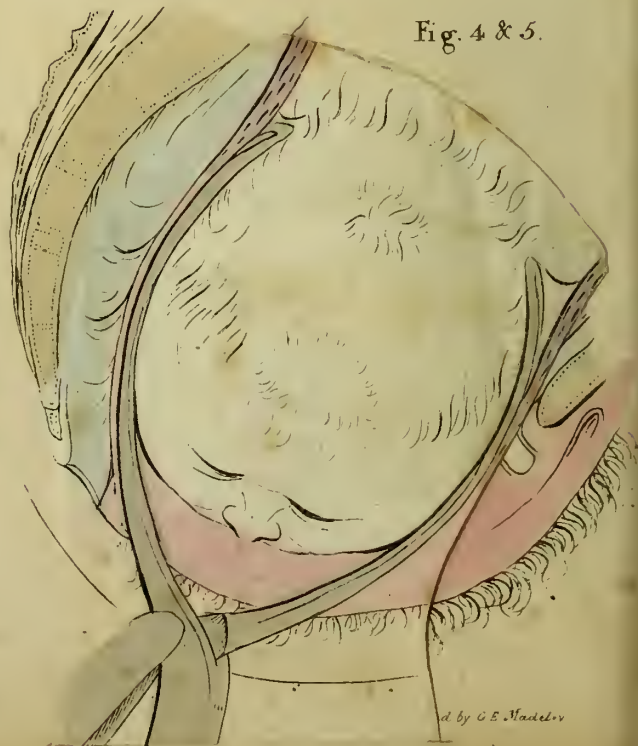


TABLE VII.

Fig. 1.—Represents an outline of Table VI. The letters of reference refer also to the same parts in Tables VIII. IX. and X. *a*, the uterus; *b*, the os uteri; *c*, the vagina; *d*, the left nymphæ; *e*, left labia; *f*, the perinæum; *g*, the rectum; *h*, abdominal muscles, &c.; *i*, the lower lumbar vertebra; *k*, the bones of the sacrum and coccyx; *l*, the spinous processes of the vertebra and sacrum; *m*, muscles, &c. of the back; *n*, the os pubis; *o*, part of the left thigh; *p*, the bladder.

Fig. 2, 3, 4, and 5.—Represent sketches of face presentations. The letters refer to the same parts in all the four figures. *a a*, section of the lower part of the uterus; *b*, the rectum; *c*, the vagina; *d*, the left labia; *e*, the left nymphæ; *f*, part of the bladder; *g*, os pubis of the left side; *h*, section of the bones of the sacrum and coccygis; *i*, the perinæum; *k*, section of the muscles, &c. covering the bones of the sacrum, &c.

Fig. 2.—Face presenting with the occiput to the left side.

3.—Face presenting with the chin towards the pubis.

4.—Face presenting with the occiput to the right side.

5.—Face presenting with the chin towards the sacrum.

Remarks on these presentations follow our description of Table IX.

TABLE VIII.

Fig. 1.—Represents a section of the same parts of the pelvis, &c. as the preceding Table, with the mode of applying the left hand blade of the forceps* in the first position of the foetal head.

In this position it is seldom necessary to apply the forceps till the head has descended pretty low into the cavity of the pelvis, as here represented. The first part of the operation consists in introducing one or more fingers of the right hand into the vagina, between the ossa pubis and head of the child to the ear, as conductors to the instrument; then taking the left hand blade, as here represented, the point of the blade is to be slowly conducted between the head of the child and fingers till it reaches the ear; it should then be gently raised up and applied over the child's ear; it is then, by a slow semi-rotatory motion, to be moved upwards along the side of the pelvis till the lock reaches the external parts near the anterior angle of the pudendum.

* * We think it incumbent here to observe, that in our delineations of the forceps in this and the subsequent drawings, it is not to be presumed that we take upon ourselves to recommend any particular form of instrument; we are fully aware that teachers of midwifery and accoucheurs often give their preference to a particular instrument for general purposes. Some prefer the short forceps, some the curved, others again have their own peculiar form of forceps. Hence we have delineated different forceps in the various positions of the foetal head, not intending thereby to imply that the position of the head required that particular form of forceps—any other form of instrument might be used with equal advantage. So with regard to the vectis or lever, we do not take upon us to recommend it, although in one instance we have represented it.

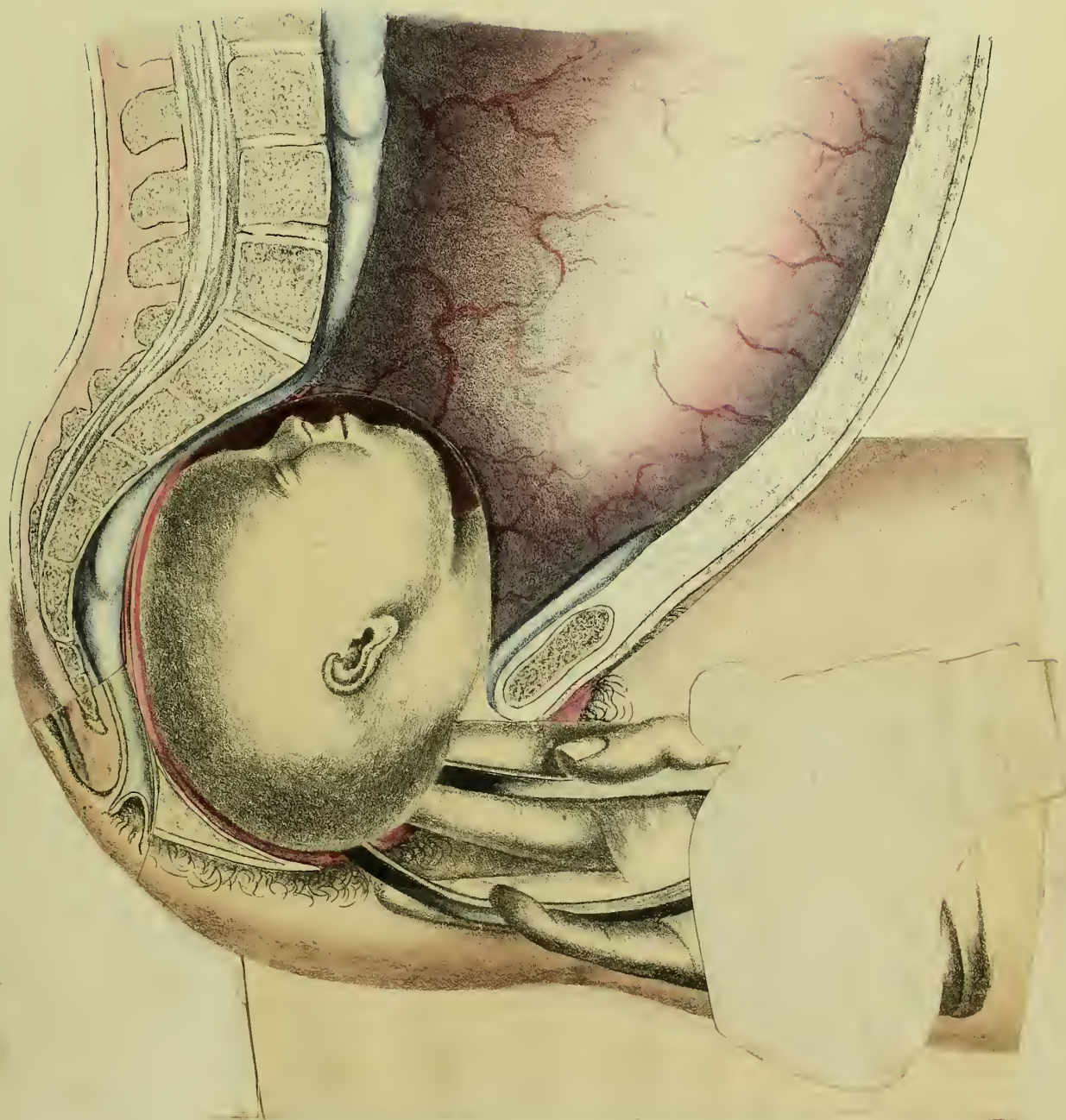
Fig. 2.—Represents the mode of applying the second blade of the forceps, with the first blade moved backward to the inferior fouchette.

The general rule for the introduction of the second or right-hand blade† prescribes, to keep the blade first introduced in its place, (*i. e.* the handle towards the pubis,) with the

* The forceps here represented are Dr. Davis's. Vide Elements of Operative Midwifery.

† Denman's Midwifery.

TABLE VIII.



two small fingers of the left hand, and introduce the fore finger of the same hand as high up as you can reach between the perinæum and head of the child; then taking the second blade of the forceps in the right hand, the point is to be conveyed between the finger placed within the perinæum and the head of the child, till the lock shall touch the anterior part of the perinæum. The blade first introduced is then to be slowly withdrawn, and carried so far backward that it can be locked, with the second blade retained nearly in its first position.

In this figure, it will be observed, we have delineated the blade of the forceps first introduced as moved backwards towards the perinæum, and the two first fingers of the left hand represented as passed into the vagina, obliquely over the shank, and anteriorly to the handle of the instrument already introduced, (as near to the ear as they can reach,) as conductors to the second blade. The second blade being then taken up with the right hand, and carried along the palm of the conducting hand, so that its points shall reach the tips of the fingers. It must then be carried forward by a circuitous movement over the right parietal, coronal, and temporal regions of the head, when it will be readily locked with its antagonist blade.*

Fig. 3.—Represents both blades of the common short forceps introduced and locked, and placed backward against the perinæum.

When the *forceps* are locked, if the handles be in contact with each other through their *whole length*, they are *not* properly applied; for the bulk of the head is usually too great to allow the handles to touch each other, if the head be properly included within the bows. If the handles are very *far apart*, the points of the blades probably rest upon the ears; at all events, the head is not properly embraced by the *forceps*, and in attempting to act with them they will slip.

When acting with the *forceps*, the force at first used should be very moderate, but increased as occasion may require; yet if the head advances at all, however slowly with the force first applied, it need not be increased.† The traction at every stage of the operation must be made in a line with the axis of the pelvis. (See *Fig. 4*, Table I.) In proportion, therefore, as the head advances towards and through the inferior aperture of the passage, it becomes necessary that the handles of the *forceps* should be raised more and more towards the abdomen of the patient.

Fig. 4.—This figure represents the head of the fœtus considerably more advanced, the occiput emerging from under the arch of the pubis; and also the first action of the forceps (after they are applied and locked) made by

* Elements of Operative Midwifery.

† Merriman on Difficult Parturition, p. 167.

bringing the handles, firmly grasped in one or both hands, slowly towards the pubes.

When the foetal head be so far advanced, (as here represented,) there is *seldom* any further necessity for the use of the forceps; and we are told, if there be sufficient pain, they may be withdrawn.* On the removal of the forceps before the foetal head is born, there is some diversity of opinion. Dr. Denman says, "they should not be removed before the head is expelled, though their assistance be not required, lest the pains should cease, and we should be under the necessity of re-applying them." Some eminent accoucheurs dissent from this rule, being convinced that it is very seldom necessary to allow the forceps to remain any considerable length of time within the pelvis. As in the majority of forcep cases the foetal head demands only a moderate assistance to change its position, and advance it beyond the point of obstruction, that overcome, the natural pains (if there be any) will expel the head without further assistance.†

* Hogben's Obstetric Studies, p. 104.

† Elements of Operative Midwifery, p. 213.

TABLE IX.

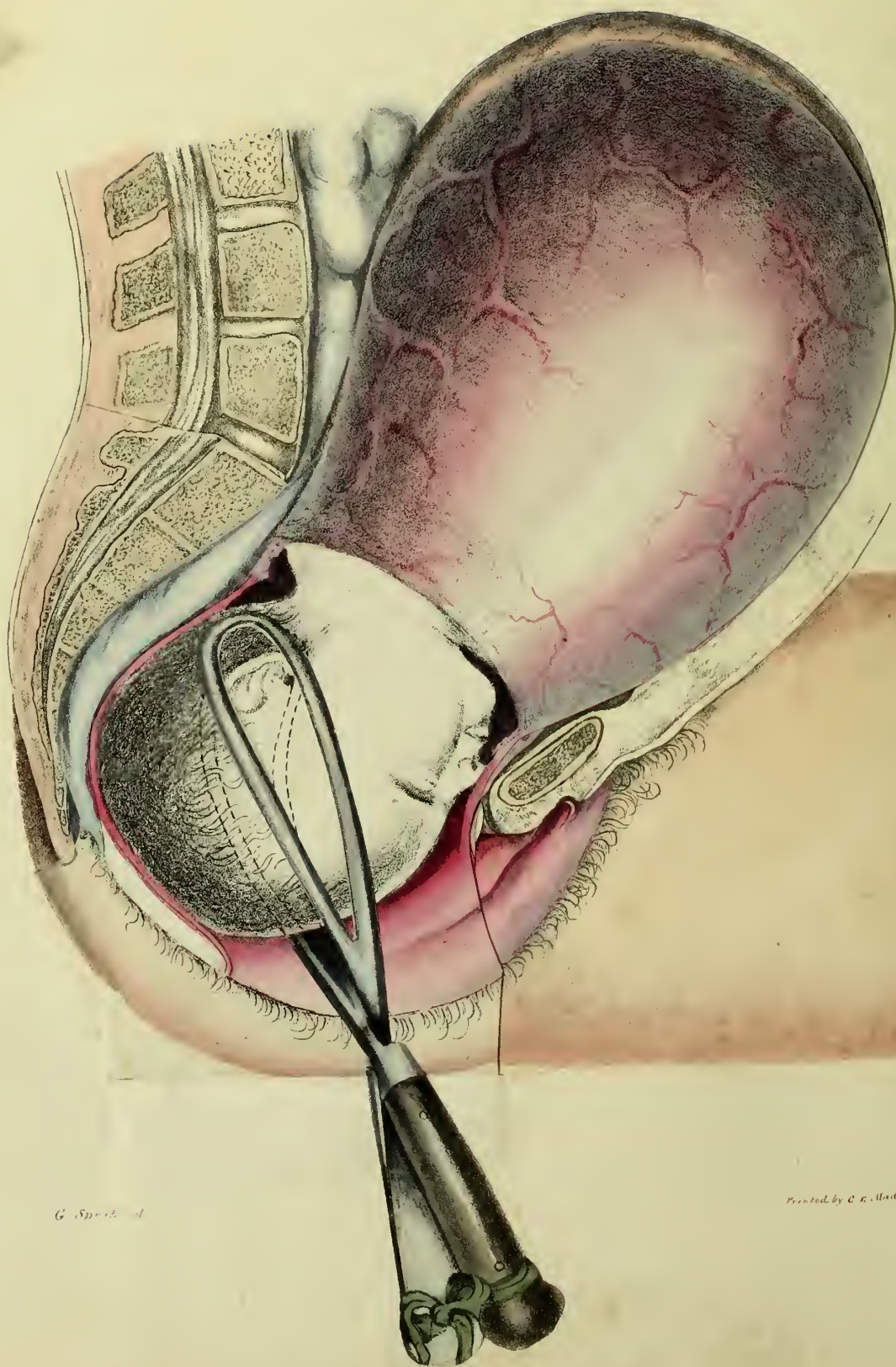


TABLE IX.

Fig. 1.—Represents the same section of parts as in the preceding Tables, with a portion of the lower part of the uterus removed to show the head of the child in the second position, viz. with the face towards the pubes. In this drawing the dotted lines are intended to represent the double curved forceps, and show the different hold they have of the head compared with the common short forceps, here represented as applied.

This is the most frequent of all the wrong presentations of the head. In this position the head is usually longer in passing through the pelvis than in the first position; but if the pelvis be well formed, and the action of the uterus strong, in the majority of cases the child will be expelled alive by the natural efforts. Should untoward symptoms arise so as to demand artificial assistance, this position (when the head has descended low into the pelvis) may sometimes be rectified, as proposed by Dr. Clarke, by laying two fingers on the cheek, and pressing gently during every pain, gradually turning the face into the hollow of the sacrum. Should this not succeed, the forceps or lever, or other means must be resorted to, according to the exigencies of the case. In this presentation, if the lever be used, it may be applied over the mastoid process, in order to bring the chin below the pubes, when the case would be managed without much difficulty, and with little risk to the perinæum; or the lever may be passed behind the occiput, to assist the pains in advancing the occiput towards the os externum. The application of the forceps in this position of the head does not materially differ from the first position, described Table VIII. They are to be applied over the ears of the child, but when applied, (as will be seen by the drawing,) they have a different and less perfect hold; hence they are more apt to slip, and act with less advantage.

In this position, when the head is brought low down as to distend the external parts, there will be great danger of laceration, unless the perinæum is cautiously guarded, and the head prevented from advancing too fast, (if the pains be strong,) until the os externum is gradually and sufficiently dilated.

Fig. 2.—In this drawing the right side of the uterus is removed to show the child in the act of parturition, with the face towards the right side of the pelvis, (one ear to the sacrum, the other to the pubes); this may be denominated the third position of the foetal head.

In this unfavourable position, the head is (especially if large, or the pelvis somewhat small) liable to become arrested in its progress through the pelvis. Should there be occasion to use the forceps in this presentation, they must be applied over the ears of the child; but to facilitate the expulsion of the head, it will be necessary to alter this position to the first or most natural position. This is to be effected by carrying the face into the

hollow of the sacrum, by a gentle rotary movement from left to right to about one-fourth of a revolution, or what is called a quarter turn. The mal-position of the head being removed by this movement, it is probable the labour pains, (if there be any,) may be sufficient to expel the fœtus without further assistance.

Fig. 3.—Represents the forceps applied in the fourth position of the foetal head, *i. e.* with the face to the left side of the pelvis.

In this presentation the left ear may be felt behind the symphysis of the pubes; the head being arrested in its progress by its untoward position, it becomes expedient to alter the position by turning the face into the hollow of the sacrum. This is to be effected by reversing the rotary movement described in the preceding position of the head. In this case, the face being turned to the left side, the movement must be made from the right to the left. The head being in this manner placed in the most favourable position, nature will in the majority of cases accomplish the delivery without further assistance. Hence the forceps may be removed, unless hemorrhage or other untoward symptoms demand a more speedy delivery.

Fig. 4.—The face in this drawing is represented as being carried into the hollow of the sacrum, by the rotary movement described in the two preceding positions of the head; the case now becomes similar to a natural presentation, and may be managed as such in every respect according to circumstances.

When the face presents, it may be known, by the inequality of the presenting part, and the distinction of the nose, chin, &c. The management of these cases must, in a great measure, be left to the efforts of nature, as the child may pass by the pains only, after a tedious labour. But the features of the face are often amazingly distorted, and it is well known that long and severe pressure on the head in such presentations often destroy the child in the birth. Therefore, if assistance can be rendered either by the forceps or vectis to shorten the labour, so as to preserve the life of the child, the judicious use of such instruments must be acknowledged as of real benefit.

Should symptoms require the use of the forceps, they must be applied over the ears of the child (as represented in *fig. 2* and *4*, Table VII.), and in our action with them, extract from handle to handle, at the same time bringing the chin round to the symphysis pubes. Face presenting with the chin to the sacrum; (See *fig. 5*, Table VII.) should the forceps be found necessary, from the size of the head, floodings, faintings, &c. they must be applied over the ears, and the handles kept close against the perinæum. In this presentation the vectis may also be applied, as we have represented a blade of the curved forceps, *i. e.* over the ear and mastoid process. Face presenting with the chin towards the symphysis pubis. (See *fig. 3*, Table VII.) This is the most favourable of the face presentations.* In this case the vectis, if judiciously applied over the occiput,† will alter the position of the head; but should this not succeed, the forceps must be applied as in the former case.

* Denman's Introduction to Midwifery.

† Vide Hogben's Obstetric Studies.

TABLE X.



G. Spratt del. et lith.

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TABLE X.

Fig. 1.—Represents the same section of the parts as described in Table VI, with a section of the uterus, the right side being removed to show the foetus in the act of parturition, the breech presenting with the back towards the forepart of the pelvis. The os uteri nearly dilated, the membranes broken, and the waters discharged, with the uterus contracted round the body of the child.

This presentation forms one of the first order of preternatural presentations, which include, also, the presentation of the hip, the knees, or one or both legs. In the nates presentation, if the pelvis be well formed, and the child not particularly large, children are usually expelled by the action of the uterus. It has been recommended by some writers, to assist the delivery, when the buttocks do not pass readily through the pelvis, (there being urgent necessity for hastening the delivery,) by passing a finger on each side over the thighs to the groins, or when the groins are beyond reach of the fingers, to introduce the blunt hook, by which to extract the child; or the descent of the nates may be assisted by the forceps, applied (one blade on each side) over the flank of the child.* There is yet another mode by which the nates may be extracted, which is by passing a fillet, or silk handkerchief over the bend of the thighs, close to the belly; by this the necessary extracting force may be very advantageously and more safely employed, than by the blunt hook.† When the nates are brought through the os externum, the case becomes a crural presentation.

Fig. 2.—Represents the child presenting with one hand and foot.

This mixed presentation is very rarely met with, but we have introduced it to caution junior practitioners to avoid the error of mistaking a superior extremity for an inferior: this error has occurred. The crural or foot presentation is the most simple, and often the safest to the mother, of any of the preternatural presentations; but the life of the child is often placed in considerable danger from the compression of the navel cord, after the body of the child has passed through the pelvis. Hence, so soon as the body is born, the object of the accoucheur is to facilitate the head through the pelvis with all convenient speed. In order to accomplish this, it becomes necessary that the head of the child should occupy the hollow of the sacrum, after it has passed the superior aperture of the pelvis. To ascertain the position of the head, we must examine the feet; if the toes are turned towards either *sacro-iliac synchondrosis*, the foetus is already in the proper

* Dr. Blundell's Lectures.

† Vide Merriman's Synopsis.

position; but if the toes point to the *symphysis pubis*, the head is then in an untoward position, because it cannot adapt itself to the form of the pelvis. It will therefore be proper, if the head be in a wrong position, so soon as the nates have passed through the os externum, to grasp the nates and thighs, (previously wrapped in a warm cloth, to prevent the fingers from slipping,) and during a pain to give such an inclination to the child, as will incline the face towards the sacrum.* The arms should then be cautiously brought down, one after the other; the head is then to be extracted as expeditiously as the necessity of the case may need; if the pulsation in the string become weak or ceases, the case becomes urgent, and without waiting for natural pains, the extraction must be made; but so long as a pulsation is felt, there is no occasion for hurrying the delivery.

Fig. 3.—Represents the presentation of the arm, which forms one of the second order of preternatural presentations, according to Denman and others. This order also includes the presentations of the shoulder, and the more rare presentations of the back, belly, or sides.†

In either of these presentations it is necessary to turn the child and deliver footling, it being impossible for a full grown foetus to pass through the pelvis in either of the above positions. The necessity of turning in these presentations is universally admitted, and the more speedily this is accomplished, when the os uteri is sufficiently dilated, (either naturally or artificially, as the case may require,) to admit the hand into the uterus, the more easily and safely will the operation be performed.‡ Having obtained room to pass the hand through the os uteri, rupture the membranes, (should they not have been previously broke,) by pressing a finger firmly against them, the hand will then come in contact with the limbs or body of the foetus. The hand is then to be carried forward till it reaches the feet, which should be carefully drawn down along the belly of the child, and as the feet are brought lower, the presenting arm will be retracted; when the feet are brought through the os externum, the case becomes similar to a crural presentation, and must be managed as such.

Fig. 4.—Represents a shoulder presentation; the management of this case is by turning the child, as described in the preceding figure.

* Vide Dr. Blundell's Lectures.

† Madame Boivin, in her *Memorial de l'Art des Accouchemens*, has given delineations of those positions, but as in 20,517 cases delivered at the Hospice de la Maternité at Paris, no instance of such presentation occurred at the full period of gestation, we have not thought it necessary to swell the present work by delineating them.

‡ In ordinary cases, if the os uteri be dilated to the size of a crown piece, and the soft parts in a state of relaxation, the sooner the operation is commenced the better.

Fig. 5.—Represents the fœtus in the natural position seen through the amnion and waters; the funis presenting with the membranes unbroken.

When the funis presents, the most usual part of the fœtus beyond it, will be found to be the head, (as represented in the drawing,) the nates or feet. Formerly it was supposed, that whenever the funis presented, the fœtus lay across the pelvis, with the umbilicus over the os uteri; and M. Maygrier supposes the descent of the funis to indicate a presentation of the belly.* Smellie has also represented (in his plates) the descent of the funis as accompanied with the presentation of the abdomen; but the presentation of the abdomen is extremely rare; whereas presentations of the funis are by no means uncommon, and when occurring, usually precedes the head, nates, or foot. When the funis presents, the child's life is always in danger, for if much pressure be continued on the funis for the space of a few seconds, the child becomes languid; and if the circulation be suppressed for one minute, the child is in the utmost danger. Hence, attention must be paid to the pulsation in the funis. If, upon a first examination, no pulsation is to be felt in the funis, the child is already dead, and the case must be managed according to circumstances, without regard to the funis; but if there be a pulsation in the cord, we are assured the child is yet living. Various modes have been proposed by different practitioners for replacing the protruded cord, but not one of which is likely to succeed in every, or even in the majority of cases; for the funis is generally forced down again on the pain returning.† When the head is low down in the pelvis, it may be prudent sometimes to hasten the delivery (if the child be living) by means of the forceps. “If the breech present, it may be expedient to bring down one or both the inferior extremities at a proper time, taking care that the funis be not entangled between the legs of the infant.” Should the upper extremities present with the funis, recourse must be had to turning, if the child be living or dead, (the position of the child demanding the operation of turning independent of the funis.) We would say, were we called to a case, in which the os uteri was very considerably dilated, *as represented in the drawing*—the membranes unbroken—the *funis pulsating strongly*—the head beyond it—we would rupture the membranes, gently introduce the hand, and turn the fœtus; or should the membranes be broken, and our efforts to return the funis prove ineffectual, we would turn, provided the funis *pulsated*—if, on the contrary, the pulsation in the cord should have ceased, the case should be left to the efforts of nature.

* Vide Méthode pour Manœuvrer les Accouchemens, 1804, p. 49.

† Mr. Hogben (vide Obstetric Studies) recommends, after the funis has been carried as far as possible above the brim of the pelvis by the fingers or some other contrivance, to introduce a piece of a sponge, so as to keep the funis from sinking. Dr. Davis (see Elements of Operative Midwifery) recommends fixing the funis by means of thread to the point of a thin, flat, plate of elastic steel, fixed in a wooden handle, and carrying the point of the instrument above the head of the child, out of the way of pressure. Dr. Mackenzie succeeded by tying the prolapsed funis in a small leather bag, and carrying it beyond the head of the fœtus.

TABLE XI.

Fig. 1.—The abdomen laid open to show a front view of the gravid uterus at the full period of pregnancy. *a a a a*, the peritoneum lining the parieties of the abdomen; *b*, a portion of the omentum covering the small intestines; *c*, part of the small intestines; *d d*, the round ligaments of the womb; *e e*, the fallopian tubes: on the left side little more than the beginning of the tube is seen, the rest running down behind the womb: on the right side, the middle part only is exposed, the beginning being concealed by the intestine which lies upon that part, and the end or fimbriæ being covered by the spermatic vessels.

Fig. 2.—The spongy chorion, a thick opaque substance (or membrane) adhering to the uterus, and forming the outer layer or coat of the ovum.

Fig. 3.—The decidua, or true chorion, a dense, thin, smooth membrane, connected with the spongy chorion as far as the edge of the placenta, it is then reflected over the surface of the placenta, which is opposed to the fœtus, and continued over the cord.

Fig. 4.—The amnion, a thin, transparent, dense membrane, lining the decidua, (through which the fœtuses are seen.) The amnion is smooth and polished next the fœtus, and destitute of vessels; it encloses the fœtus and liquor amnii, and assists in dilating the mouth of the uterus at the period of labour.

Fig. 5.—Represents a plural conception, each fœtus enveloped in separate membranes.

The fundus of the impregnated uterus at the period of between two and three months is even with the brim of the pelvis; about the latter end of the third or fourth, but some-

TABLE XI.



times a little later, the uterus advances above the brim, and is then readily perceived by the hand through the abdominal muscles, &c. Between the fourth and fifth month the fundus is between the pelvis and navel; at the sixth, as high as the navel; at the seventh month, between the navel and scrobiculus cordis; in the eighth month, up to the scrobiculus cordis. The fœtus, at the full period of utero gestation, weighs on an average from six to nine pounds, the placenta little more than one. The liquor amnii varies so considerably, that it is difficult to form an average quantity; but we may say that the quantity generally contained in the membrane is from eight ounces to sixteen. When it *exceeds* three or four pints, it may be considered excessive, and is then frequently the cause of lingering labours, from over distension of the uterus. Cases are on record in which the liquor amnii has measured five and ten pints; and when the fœtus is diseased, the liquor amnii occasionally far exceeds the above quantity.

In the early stages of gestation, the quantity is larger in proportion to the size of the uterus than afterwards. The liquor amnii is sometimes of a greenish cast, often of a milky appearance, and at other times of a yellowish colour. It contains water, albumen, carbonate and muriate of soda, and phosphate of lime.

The membranes of the ovum become of a firmer texture towards the end of pregnancy. Occasionally they are found at the time of labour unusually rigid and thick, and thus occasion a protracted delivery. Cases are on record in which the membranes have exceeded an eighth of an inch in thickness.* When the membranes have not been artificially ruptured, (and as a general rule of practice they never should be,) and have withstood the action of the uterus, the whole ovum has been expelled at once.

Twin cases usually terminate with safety both to the parent and children. It is the duty of the accoucheur invariably to ascertain if there be a second child before leaving his patient. After applying the hand to the abdomen, or a finger or two in the vagina, should there remain any doubt, it will be prudent to pass the whole hand into the vagina, rather than leave his patient under any uncertainty. On the management of twins some diversity of opinion exists as to whether the birth of the second should be purely artificial or left to nature. Several cases are on record where the second child has been retained many hours, or days, and even weeks, without mischief.† Hence it has been supposed by some that the birth of the second child might be left to an indefinite period, provided no untoward circumstance should supervene to render artificial interference necessary. Others again, in anticipation of danger, proceed to deliver the second child immediately after the birth of the first. But the most experienced accoucheurs wait a certain time, (from one to four hours,) provided the first child was delivered by the natural efforts, and no untoward circumstance, as convulsions, hemorrhage, &c. should take place. But if the child should present in a wrong direction, it has generally been considered expedient to extract it by the feet with as little delay as possible. If also the first labour have been

* Vide Merriman's Synopsis.

† Vide Medical and Physical Journal for April 1811.

preternatural, dangerous, or difficult, it is with some an additional reason for delivering the second child as expeditiously as circumstances will permit.

In some cases, it may be sufficient merely to rupture the membranes, in order to bring down the feet, or to render such assistance as the individual case may require.

THE END.

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TABLE XII.



- A.* Side view of an injected uterus to shew the blood vessels, the outer stratum or peritoneal coat being removed except at the back part *A*.
- B.* The tube behind which the ovary lies concealed.
- C.* The neck of the uterus.
- D.* The Spermatic artery.
- E.* The Spermatic vein.
- F.* The Hypogastric vein.
- G.* The Hypogastric artery.

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 Bell, Sir Charles, K.G.H., 30, Brook Street, Grosvenor
 Square.

Bevan, Thomas, Esq., Surgeon, Queen St., Cheapside.
 Beverley, Charles, Esq., Surgeon, Bethnal Green.
 Blackett, Powell, Esq., Surgeon, Green Street, Gros-
 venor Square.

Blaine, — Esq., Surgeon, Ongar, Essex.
 Blake, Dr., Kennington.
 Blandford, S. Esq., Surgeon, 20, Dover Street.
 Bloxam, William, Esq., Surgeon, 4, Hanover Street,
 Hanover Square.

Blundell, Dr., Great George Street.
 Blundell, Thomas Leigh, M.D., Woburn Place.
 Brian, Robert, Esq., R.N., Surgeon, 13, Spencer Street,
 Northampton Square.

Bright, Richard, Dr., 11, Saville Street.
 Brodie, B. C. Esq., Surgeon, ditto.
 Broster, Thomas, Esq., Surgeon, 17, Queen's Build-
 ings, Brompton.

Bryant, John, Esq., Surgeon, 50, Edgeware Road.
 Butler, James, Esq., Surgeon, 34, Seething Lane.

Camplin, John, M. Esq., Surgeon, Finsbury Square.
 Carruthers, George, Esq., Surgeon, Mile End Road.
 Carruthers, James Mason, Esq., Surgeon, 29, Ludgate
 Street.

Chinnock, H. S. Esq., Surgeon, 12, Michael's Place,
 Brompton.

Cholmondeley, Joseph, Esq., Surgeon, 3, Nottingham
 Place, New Road.

Clarke, Sir Charles, Bart., Physician to the Queen,
 Saville Street.

Clough, — Esq., Surgeon, Upper Southampton Street.

Conquest, Dr., Fitzroy Square.

Copeland, Dr., Bulstrode Street.

Cooke, William, Esq., Surgeon, 39, Trinity Square.

Cumming, R. N. Esq., Surgeon, 26, Cheyne Walk,
 Chelsea.

Davenport, Thomas, R. Esq., Surgeon, Harborough,
 Leicestershire.

Davies, Dr. Henry, Clifford Street.

Davis, Dr. David, D., Fitzroy Street, Fitzroy Square.

Davis, James, Esq., Surgeon, 33, Red Lion Square.

Dew, Dr. 82, Gower Street, Bedford Square.

Dover, Frederick, Esq., Surgeon, 54, Great Coram St.

Earle, Henry, Esq., Surgeon, George Street, Hanover
 Square.

Edwards, Daniel, Esq., Surgeon, Queen St., Cheapside.

Elsegood, H. C. Esq., Surgeon, 14, Upper Brook Street.

Evans Lewis, Esq., Surgeon, 24, Finsbury Square.

Farquhar, Alexander, Esq., Surgeon, King's Road,
 Chelsea.

Farrar, Edward, Esq., Surgeon, 48, Guildford Street,
 Russell Square.

Fernivall, W. H. Esq., Surgeon, Princes Court.

Fincham, G. Esq., Surgeon, 5, Spring Gardens.

Forbes, Dr., Argyle Street.

Freeman, Robert, Esq., Surgeon, Stony Stratford, Bucks.

Gibbs, Dr., 6, Baker Street.

Godrich, Francis, Esq., Surgeon, Little Chelsea.

Gozna, Thomas, Esq., Surgeon, 29, Oxendon Street.

Granville, Dr., Grafton Street.

Green, Joseph Henry, Esq., Surgeon, Lincoln's Inn
 Fields.

Griffith, H. Esq., Surgeon, 39, Connaught Terrace.

Guthrie, G. I. Esq., Surgeon, 2, Berkley Street.

Hall, Frederick, Esq., Surgeon, 14, Montague Street,
 Russell Square.

Hawkins, Bisset, Dr., Golden Square.
 Hellier, R. B. Esq., Surgeon, 21, Montague Place,
 Russell Square.
 Heygate, Thomas, Esq., Surgeon, Harbrough, Leices-
 tershire.
 Hodgkins, Dr., New Broad Street.
 Horwood, John, Esq., Surgeon, Northampton.
 Hulman, William, Esq., Surgeon, Argyle Street.
 Hunter, Thomas, Esq., Surgeon, 5, Cooper's Row, Tri-
 nity Square.
 Hunter, John, Esq., Surgeon, 83, Mincing Lane.
 Hunt, Henry, Esq., Surgeon, 15, Lower Brook Street,
 Grosvenor Square.
 Iliff, William Tiffin, Esq., Surgeon, F.L.S., Newington
 Surrey.
 Jones, Henry, Esq., Surgeon, 7, Carlisle Street, Soho Sq.
 Kerbey, W. Esq., Surgeon, Brompton Row.
 King, John, Esq., Surgeon, Stepney.
 Kisch, Jos., Esq., Surgeon, 4, Broad Street Buildings.
 Laisne, G. J. Esq., Surgeon, 4, Eaton Square.
 Langmore, Dr., Finsbury Square.
 Leary, Daniel, Esq., Surgeon, 18, Parliament Street.
 Lee, R. Dr., Golden Square.
 Leese, Edward, Esq., Surgeon, 16, Baker Street.
 Leese, Lewis, Esq., Surgeon, 11, South Street, Fins-
 bury Square.
 Lewis, D., Esq., Surgeon, 21, Bunhill Row, Finsbury.
 Locock, Dr. Physician extraordinary to the Queen, 9,
 Hanover Square.
 Loe, Charles, Esq., Surgeon, Stony Stratford, Bucks.
 Mart, G. R. Esq., Surgeon, 61, Friith Street, Soho.
 Martin, Charles, Esq., Surgeon, 9, Connaught Terrace.
 Merriman, Dr., Brook Street, Grosvenor Square.
 Morgan, John, Esq., Surgeon, 22, Chapel Street, Bel-
 grave Square.
 Morris, Dr., Princes Court.
 Morley, Henry, Esq., Surgeon, 100, Hatton Garden.
 Muller, — Esq., Surgeon, 46, Hans Place, Chelsea.
 Northampton Infirmary, the Medical Library of the.
 Outlaw, H.M. Esq., Surgeon, Wellingbro, Northampton.
 Painter, James, Esq., Surgeon, 26, Howland Street,
 Fitzroy Square.
 Pardoe, Dr., 30, Great James Street, Bedford Row.
 Percival, William, Esq., Surgeon, Northampton.
 Perry, John, Esq., Surgeon, 59, Ebury Street, Pimlico.
 Phillips, James, Esq., Surgeon, Bethnal Green.

Ponder, William, Esq., Surgeon, 22, King Street,
 Covent Garden.
 Porter, Thomas, Esq., Surgeon, 1, Euston Place, New
 Road.
 Potter, John, Esq., Surgeon, Ongar, Essex.
 Probert, John, Esq., Surgeon, New Cavendish Street.
 Ramadge, Dr., Ely Place.
 Ramshotham, Francis H., Dr., New Broad Street.
 Reading The, Medical and Surgical Society.
 Reid, J. Esq., Surgeon, Charlotte Street, Bloomsbury.
 Reynolds, Henry, Esq., Surgeon, 48, Prescott Street.
 Riadore, Evans, F.L.S., 17, Tavistock Square.
 Rigg, Robert, Esq., Surgeon, 10, Upper George Street,
 Edgeware Road.
 Robertson, Dr., Northampton.
 Rowe, Matthew, Esq., Surgeon, 24, Woburn Place.
 Rowe, — Esq., Surgeon, Chigwell, Essex.
 Rundall, Alfred M. Esq., Surgeon, 50, Finsbury Sq.
 Ryan, Dr., Hatton Garden.
 Saner, James, Esq., Surgeon, Finsbury Square.
 Sharp, James, Esq., Surgeon, 19, Grosvenor St. West,
 Eaton Square.
 Sigmond, Dr., 24, Dover Street.
 Smith, J. S. Esq., Surgeon, 19, Trinity Square.
 Smith, C. Esq., Surgeon, 10, Upper Queen's Buildings,
 Brompton.
 Stanton and Kenny, Messrs., Strand.
 Stott, Thomas, P. Esq., Surgeon, 9, North Audley St.
 Sutherland, Dr., Parliament Street.
 Terry, H. Esq., Surgeon, Northampton.
 Thomson, Dr., 58, Hermitage Place.
 Thompson, Dr. Theop., 15, Keppel Street, Russell Sq.
 Thomas, H. Leigh, Esq., Surgeon, Leicester Place.
 Turner, Henry, Esq., Surgeon, 31, King St., Bloomsbury.
 Tuson, Edward, Esq., Surgeon, Russell Place, Fitzroy
 Square.
 Vickers, W. R. Esq., Surgeon, 9, Thy Street.
 Van Oven, Barnard, Esq., Surgeon, 25, Broad Street,
 Buildings.
 Vaux, C. B. Esq. Surgeon, 56, Pudding Lane.
 Warburton, Dr., Clifford Street.
 Watson, Thomas, Dr., Henrietta Street, Cavendish Sq.
 Weatherhead, Dr. Golden Square.
 Walshman, Dr., Kennington.
 Webster, George, Esq., Surgeon, 78, Connaught Terrace.
 Whiting, Dr. Borough.
 Whitmore, Henry, Esq., Surgeon, Cold Bath Square.
 White, Anthony, Esq., Surgeon, Parliament Street.

ADDITIONAL SUBSCRIBERS.

Airey, —, Esq., Surgeon, Broad Street, Golden Sq.
Allender, G., Esq., Surgeon, High Street, Whitechapel.
Armign, T. J., Esq., Surgeon, 4, Philadelphia Place,
Hackney Road, (for the Cambridge Heath Medical
Society.)

Austin, M., Esq., Surgeon, Red Lion Street.

Beetham, Arthur, Esq., Surgeon, 49, Old Broad Street.
Bird, James, Esq., M.R.C.S., Surgeon, 259, Oxford
Street.

Bowden, Edward, Esq., Surgeon, 135, Sloane Street.
Bull, Thomas, Esq., Surgeon, 27, Finsbury Place.
Burrows, W., Esq., Surgeon, 1, Park Street, Islington.
Butchell, S. Van, Esq., Surgeon, Percy Street, Bedford
Square.

Byam, W. J., Esq., Surgeon, Nottingham Street.

Campbell, W., Esq., Surgeon, 23, Wilton Place, Bel-
grave Square.

Clarke, Henry, Esq., Surgeon, 51, Lamb's Conduit St.
Coates, G., Esq., Surgeon, 1, Hart Street, Bloomsbury.

D'Aranda, G., Esq., Surgeon, 27, Claremont Terrace,
Pentonville.

Davidson, —, Surgeon, North Street, Manchester Sq.

De Grave, J. F., Esq., Surgeon, 41, Friday Street.

Dendy, Walter C., Esq., Surgeon, Stamford Street.

Desomeaux, D., Esq., Surgeon, 3, Brunswick Terrace,
Islington.

Doubleday, E., Esq., Surgeon, 170, Blackfriars Road.

Drew, H. P. L., Esq., Surgeon, 79, Gower Street,
Bedford Square.

Fairhead, James, Esq., Surgeon, 51, Goswell Road.

Fernandez, Peregrine, Esq., Surgeon, 70, Lamb's Con-
duit Street.

Flight, W. Henry, Esq., Surgeon, St. John Street Road.

Graves, William Henry, Esq., Surgeon, 4, Alie Place,
Great Alie Street, Whitechapel.

Hall, Thomas, Esq., Surgeon, 8, Store Street, Bedford
Square.

Hallun, J. W., Esq., Surgeon, Warren Street, Fitzroy
Square.

Hardy, W., Esq., Surgeon, 79, Gower Street, Bedford
Square.

Harding, P., Esq., Surgeon, Dorset Street, Portman
Square.

Hardey, R., Esq., Surgeon, Lower Road, Islington.

Harrison, E. Dr., Holles Street, Cavendish Square

Harvey, William, Esq., Surgeon, 66, Great Queen St.

Hensleigh, H. Esq., Surgeon, 1, Gloucester Place.

Hewson, T. A., Esq., Surgeon, King Street, Covent
Garden.

Hill, J. B., Esq., Surgeon, 3, Lambs' Conduit Place.

Hills, E., Esq., Surgeon, 1, Angel Terrace, Islington.

Holmes, John Pocock, Esq., Surgeon, 21, Old Fish
Street, Doctor's Commons.

Holt, H. F., Esq., Surgeon, Holywell Street, West-
minster.

Hood, P., Esq., Surgeon, Norton Street, Portland Place.

Jenfferson, J. F., Esq., Surgeon, Barnsbury Place,
Islington.

Johnson, James, M.D., Physician Extraordinary to the
King, Pall Mall East.

Kitching, G., Esq., Surgeon, Aldergate Street.

Lavies, J., Esq., Surgeon, King Street, Westminster.

Love, J. Esq., Surgeon, Gilbert Street.

McCann, Nicholas, Esq., Surgeon, 50, Parliament St.

McCrea, J., Esq., Surgeon, Islington.

Menzies, R., Esq., Surgeon, 86, Upper Stamford Street.

Miller, S. Dr., New Basinghall Street.

Morgan, C., Esq., Surgeon, Bedford Row.

Morrah, J., Esq., Surgeon, 62, Sloane Street.

Mugliston, W. S., Esq., Surgeon, Brewer Street, So-
mers Town.

Newberry, Francis, Esq., Surgeon, 28, Wilton Place,
Belgrave Square.

Owen, C. T., Esq., Surgeon, 146, Holborn Bars.

Painter, R., Esq., Surgeon, Broad Way, Westminster.

Pater, Richard, Esq., Surgeon, Honduras Terrace,
Commercial Road.

Peregrine, Dr. 3, Half Moon Street.

Perry, John, G., Esq., Surgeon, Great James Street.

Ridge, John James, Esq., Surgeon, 1, Bridge Road,
Lambeth.

Ridge, Benjamin, Esq., Surgeon, ditto.

Robinson, Thomas J., Esq., Surgeon, 31, Store Street,
Bedford Square.

Rutherford, Samuel, Esq., Surgeon, 132, Ratcliff
Highway.

Scard, E., Esq., Surgeon, Bernard Street, Russell Sq.

Shaw, W., Esq., Surgeon, Hampstead.

Skegg, Robert, Esq., Surgeon, Bedford Street, Covent
Garden.

Snitch, C. G., Esq., Surgeon, Brydges Street, Covent
Garden.

Squibb, G. J., Esq., Surgeon, Orchard Street, Portman
Square.

Smith, W., Esq., Surgeon, 79, Goswell Street.

Spencer, —, Esq., Surgeon, St. John Street Road.

Stevens, Frederick J., Esq., Surgeon, 190, Sloane
Street.

Thomas, D., Esq., Surgeon, Upper Dorset Street.

Uwins, David, M.D., Bedford Row.

Vines, Charles, Esq., Surgeon, 4, Warwick Court,
Holborn.

Ward, William Squire, Esq., Surgeon, Overton, Notts.
Wentworth, Malim, Esq., Surgeon, Lincoln's Inn
Fields.

White, George Francis, Esq., Surgeon, 45, Gloucester
Terrace, Commercial Road.

Williams, J. H. B., Esq., Surgeon, Aldersgate Street.

Wormald, Thomas, Esq., Surgeon, 42, Bedford Row.



